

What is claimed is:

1. A liquid crystal display comprising:

a first substrate including

a plurality of pixel electrodes arranged in a matrix for driving a liquid crystal;

a thin film transistor having a drain electrode, a gate electrode, a semiconductor layer, and a source electrode connected to corresponding one of the plurality of pixel electrodes;

a gate line connected to the gate electrode; and

a drain line connected to the drain electrode;

a second substrate disposed opposing the first substrate having a liquid crystal layer in between,

wherein

the plurality of pixel electrodes are formed on an inter-layer insulation film which has been formed covering the thin film transistor, the gate line, and the drain line;

a common electrode for driving liquid crystal is formed on the second substrate; and

an orientation control window of a predetermined pattern is formed to have no common electrodes formed in a region opposing each one of the corresponding plurality of pixel electrodes.

2. A liquid crystal display as defined in claim 1,
wherein

the inter-layer insulation film has a thickness α of at
least $0.5\mu\text{m}$ or over.

3. A liquid crystal display as defined in claim 1,
wherein

the inter-layer insulation film has a thickness α of at
least $1\mu\text{m}$.

4. A liquid crystal display as defined in claim 1,
wherein

the inter-layer insulation film has a thickness α which is
equal to or greater than a half of the interval χ between two
adjacent pixel electrodes among the plurality of pixel
electrodes.

5. A liquid crystal display as defined in claim 1,
wherein

each of the plurality of pixel electrodes is formed in a
region defined by the gate line and the drain line to
overlap, via the inter-layer insulation film, with at least a
part of the gate line or/and the drain line.

6. A liquid crystal display as defined in claim 5,

the inter-layer insulation film has a thickness α which is equal to or greater than a half of an interval χ between two adjacent pixel electrodes among the plurality of pixel electrodes.

7. A liquid crystal display as defined in claim 1, wherein,

when a voltage is applied into between the common electrode the pixel electrode, weak electric fields are generated in the vicinity of the orientation control window, and electric fields in a sloped direction are generated around edges of the pixel electrode, so that orientation of liquid crystal molecules in a pixel electrode region is controlled through the weak electric fields and the electric fields in a sloped direction.

8. A liquid crystal display as defined in claim 7, wherein

the orientation control window is formed on a region opposing the pixel electrode along a diagonal direction thereof.

9. A liquid crystal display as defined in claim 7, wherein

the orientation control window is formed having a

substantial letter X shape whose crossing point falls on a region opposing to around a center of that pixel electrode.

10. A liquid crystal display as defined in claim 7, wherein

the orientation control window includes a linear part extending straight and substantially in parallel to any of the edges of that pixel electrode, and a branch part extending continuously from both ends of the linear part toward respective corners of that pixel electrode, the linear part being formed on a region closely opposing the center of that pixel electrode.

11. A liquid crystal display comprising:

a first substrate including

a plurality of pixel electrodes arranged in a matrix for driving the liquid crystal;

a thin film transistor having a drain electrode, a gate electrode, a semiconductor layer, and a source electrode connected to a corresponding one of the plurality of pixel electrodes;

a gate line connected to the gate electrode; and

a drain line connected to the drain electrode;

a second substrate disposed opposing the first substrate having a liquid crystal layer in between; and

wherein

the plurality of pixel electrodes are formed on an inter-layer insulation film which has been formed covering the thin film transistor, the gate line, and the drain line;

a common electrode for driving liquid crystal is formed on the second substrate; and

an orientation control window of a predetermined pattern is formed to have no common electrodes formed in a region opposing each one of the corresponding plurality of pixel electrodes; and

at least parts of the thin film transistor, the gate line, and the drain line is disposed below a corresponding one of the plurality of pixel electrode having the inter-layer insulation film in between.

12. A liquid crystal display as defined in claim 11, wherein

the thin film transistor, the gate line, and the drain line are situated while being projected from a region where corresponding one of the plurality of pixel electrodes is formed by an extent y , a half value $y/2$ of the extent y being equal to or less than a thickness α of the inter-layer insulation film.

13. A liquid crystal display as defined in claim 11,

wherein

the thin film transistor, the gate line, and the drain line are situated while being projected from a region where corresponding one of the plurality of pixel electrodes is formed by an extent y , a half value $y/2$ of the extent y being equal to or less than a half of an interval χ between two adjacent pixel electrodes among the plurality of pixel electrodes.

14. A liquid crystal display as defined in claim 11, wherein

the plurality of pixel electrodes are reflector electrodes made of conductive reflective material.

15. A liquid crystal display as defined in claim 11, wherein,

when a voltage is applied into between the common electrode and the pixel electrode, weak electric fields are generated in the vicinity of the orientation control window and electric fields in a sloped direction are generated around the edges of the pixel electrode, so that the orientation of liquid crystal molecules in a pixel electrode region is controlled through the weak electric fields and the electric fields in a sloped direction.

16. A liquid crystal display as defined in claim 11,
wherein

the orientation control window is formed on a region
opposing the pixel electrode along a diagonal direction
thereof.

17. A liquid crystal display as defined in claim 11,
wherein

the orientation control window is formed having a
substantially X shape, with the vertex falling on a region
closely opposing the center of the pixel electrode.

18. A liquid crystal display as defined in claim 11,
wherein

the orientation control window includes a linear part
extending straight and substantially in parallel to any of
edges of that pixel electrode, and branch parts extending
continuously from both ends of the linear part toward
respective corners of that pixel electrode, the linear part
being formed on a region closely opposing the center of that
pixel electrode.

002211 9507260
09721056 112200

Add
B1

add
D57

add E7